

THE IDENTITY OF *ARCTIA OBLITERATA* STRETCH
(LEPIDOPTERA: ARCTIIDAE)

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Abstract.—The type specimen of *Arctia obliterata* Stretch, 1885, was long misidentified as a form of *Grammia ornata* (Packard), and the name considered a junior synonym of *ornata*. Recent examination of the type shows that *obliterata* refers to the same species as *Grammia turbans* (Christoph, 1892), described from Siberia but known also from western North America. The name *turbans* Christoph must therefore be regarded as a junior subjective synonym of *obliterata* Stretch. No differences were found to distinguish Siberian from North American specimens of *obliterata*, and the origin of the type could not be determined.

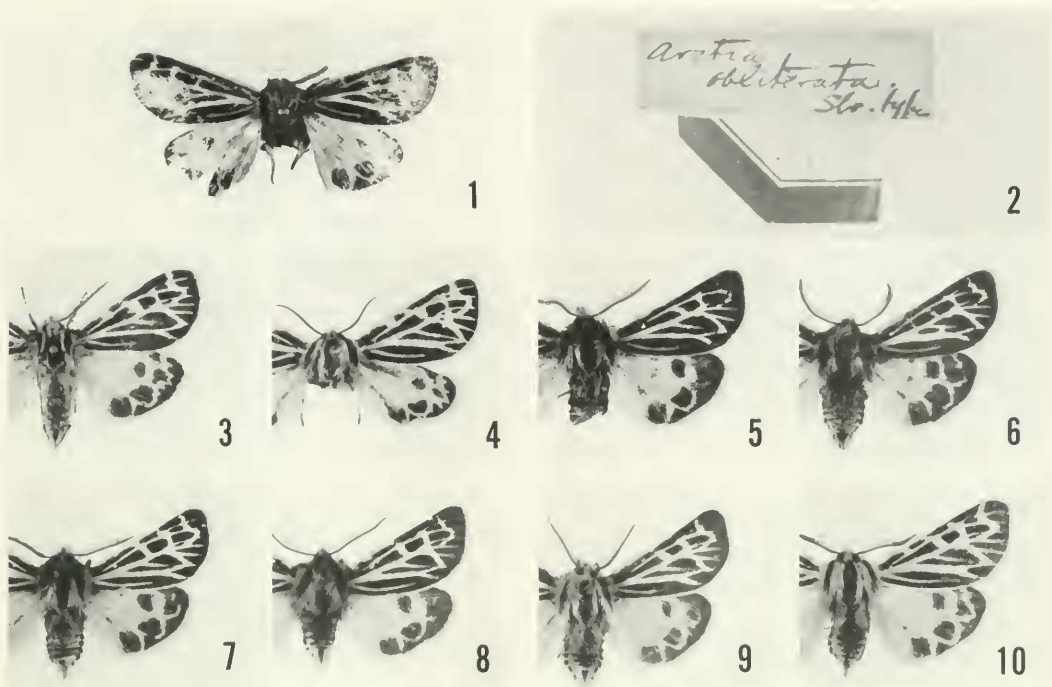
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Arctia obliterata Stretch was described from "1 ♂ in only fair condition, sent me many years ago by W. H. Edwards." (Stretch 1885: 105) (Fig. 1). The type locality was not known, and Stretch did not illustrate the specimen until 1906 (pl. 6, fig. 14) and then only after Hampson (1901: pl. 48, fig. 9) had done so. Neither illustration was accurate enough for the species to be recognized. Most later authors guessed that *obliterata* was Californian and relegated the name to infrasubspecific status under *Apantesis ornata* (Packard). My use of the generic name *Grammia* Rambur was explained in an earlier paper (Ferguson 1985: 229), in which most of the species previously placed in *Apantesis* Walker were transferred to *Grammia*.

Fortunately, *obliterata* is one of the few Stretch types to have survived and is in the collection of the California Academy of Sciences, San Francisco. It bears a label saying "*Arctia obliterata* Stretch" and a crude piece of red-bordered paper (Fig. 2) to indicate

that it is a type. Also pinned to the specimen is a note by F. H. Benjamin explaining that he considered it to be the true type, and an Allan Watson genitalia slide label, but no suggestion of synonymy. Having recently studied many species of this group, I at once recognized the holotype of *obliterata* as the same species as *Arctia turbans* Christoph, 1892, the holarctic species long known as *Apantesis turbans* and more recently as *Grammia turbans*. Since no other author made this connection, I feel obliged to justify the identification in some detail because *obliterata* remained misidentified for 100 years, and its publication preceded that of *turbans* by seven years, thus requiring replacement of a long-established name for a species that occurs on two continents. *Arctia turbans* Christoph, 1892, thus becomes a junior subjective synonym of *Grammia obliterata* (Stretch, 1885), NEW SYNONYMY.

The type material of *G. turbans* is in the National Collection of the USSR at St. Pe-



Figs. 1–10. *Grammia obliterata*. 1, Holotype; 2, original labels on holotype; 3, ♂, Irkutsk [Siberia], 16 July 1926, R. Gschwandner (in British Museum Nat. Hist.); 4, ♀, “Munko Sardyk, Saján mont., 24 Jul.” M. E. Smith genitalia slide 2000; 5, ♂, Nordegg, Alberta, 27 July 1921, J. McDunnough; 6, ♂, same data; 7, ♂, same data but collected 20 July; 8, ♂, same data but collected 27 July; 9, ♂, same data; 10, ♂, Glacier National Park, Montana, “Aug. 1–7.”

tersburg, and I have not seen it. However, many topotypical specimens were collected in the early 1900's, when Central Asia was relatively accessible to European collectors, and I have examined three of these in the U.S. National Museum and one from The Natural History Museum, London. The species was illustrated several times in palearctic literature, is easily recognized, and indeed is so distinct that an early reviser proposed a new subgeneric name for it (Smith 1938: 6). It is one of only two species of this predominantly nearctic genus known to occur in the Palearctic Region, and both also occur in northern North America. The other is *Grammia quenseli* Paykull.

Grammia turbans has a unique pattern in which the cubital and postcubital stripes of the forewing (sensu Ferguson 1985: 188, figs.

6, 7) tend to be about equally developed; the three main transverse bands are always incomplete and appear only costad of the cubitus, with the segments between veins Sc and Rs usually offset, inclined basad, or obsolete; the thin lines on veins Cu₂ and 2nd A nearly always terminate well before reaching their usual juncture with the zigzag subterminal band; and the black spots of the hindwing are regularly and consistently clustered toward the outer margin in a characteristic, evenly spaced manner. The type of *obliterata* conforms to these criteria and also agrees with *turbans* in size, wing shape, underside pattern, and structure of appendages, insofar as may be seen.

Stretch (1885: 105) appears to have appreciated the unusual nature of the pattern at least partly when he wrote: “The orna-

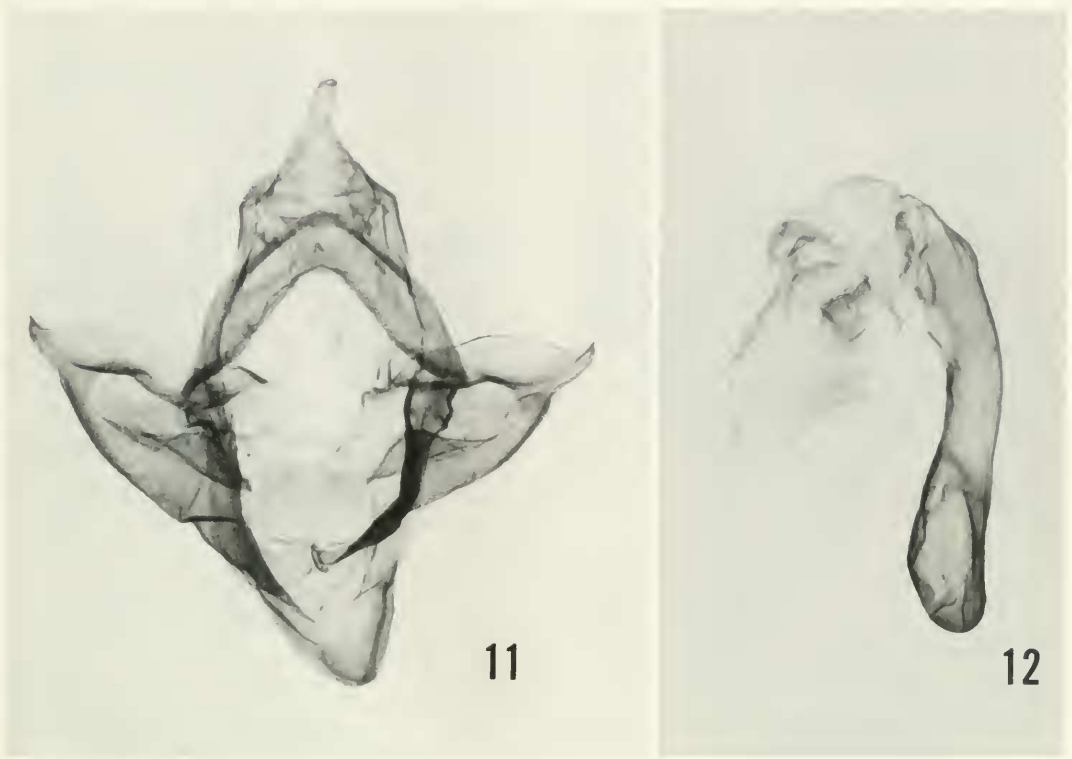
mentation of the primaries places it in the *Quensellii, gelida* group, characterized by the presence of only the costal half of the terminal band" (by which he evidently meant the postmedial band). Perhaps because of the badly rubbed condition of the type, however, he either failed to see or did not emphasize in his drawing (Stretch 1906: pl. 6, fig. 14) the heavily outlined cubital stem (unlike that of *ornata*), the fading out of the pale vein lines on Cu_2 and 2nd A, and the closely set nature of the black spots on the hindwing. All of these *turbans* characters may be seen in the type of *obliterata*, although not necessarily clearly. Stretch reconstructed the longitudinal vein lines as he thought they should be, based on his familiarity with other species. Although the transverse bands are accurately shown and agree with the pattern of *turbans*, neither Stretch's published drawing nor Hampson's give the appearance of *turbans*; that of Seitz (1919: pl. 38k) is an even poorer likeness. It is easy to see how later lepidopterists were misled. However, Stretch's brief description, including his reference to the hindwings being "dull red with black spots," agrees with the type specimen. I have no doubt that this is the holotype, and that it is the same species as *turbans*. The figure given by Hampson (1901: pl. 48, fig. 9), copied from Stretch's then unpublished drawing, is inaccurately colored. The red color of the hindwing is exaggerated and should have been more yellowish, about like that of "*Apantesis michabo*," as shown in fig. 18 on the same plate. The figure in Seitz (copied from Hampson) shows the red hindwing even more intensified and bears little resemblance to the specimen that it is supposed to depict.

The type of *obliterata* seems uncharacteristic of *turbans* in three minor respects, and I had imagined that these differences might provide clues as to its geographic origin. The hindwings are indeed pale reddish or orange rather than the usual lemon yellow. However, of 48 other specimens ex-

amined, three from Nordegg, Alberta (Figs. 7, 9) and one from Langham, Saskatchewan (Ferguson 1985: fig. 52) have the hindwing pale orange red, about the same shade as those of *obliterata*. Hampson (1901: 402), who may not have seen specimens, did describe the hindwing color of *turbans* from Mongolia as orange yellow, but four Siberian specimens available to me, labelled Irkutsk (Fig. 3) and Munko Sardyk, Sayan Mountains (Fig. 4), have the usual lemon yellow hindwings and cannot be seen to differ from yellow American specimens in any way. Variation between red and yellow may be found in the hindwing coloring of nearly all species of *Grammia* and *Apantesis*, and *obliterata* is no exception.

The type of *obliterata* has two or three indistinct dark spots just basad of the middle of the hindwing that may have contributed to the confusion, as they are missing in most *turbans*. Again, however, two Alberta specimens in the U.S. National Museum collection do have such spots (Figs. 5, 6).

The genitalia of the type of *obliterata* (Figs. 11, 12), dissected and slide mounted by Allan Watson (his slide No. 1293), appear to match those of other specimens of *turbans* except for one inconsistency. *Grammia turbans* normally has a variable, obtusely pointed or rounded, subapical protuberance or "shoulder" on the outer margin of the valve (Figs. 13, 15) that is not readily apparent in the holotype of *obliterata*. This feature was not found to vary significantly in the five other males examined, of which three were American and two were Siberian. However, the valve appears to vary greatly in shape if viewed from different angles. The genitalia of the holotype of *obliterata* were over-macerated, somewhat misshapen, and mounted with the valves not fully spread apart, so that the blunt, flattened apex of each valve is viewed edgewise from an aspect that makes it appear pointed. Thus, to achieve a perspective comparable to that of Figs. 13 and 15, one must imagine the distal



Figs. 11, 12. *Grammia obliterata* ♂, genitalia of holotype, Allan Watson genitalia slide No. 1293. 11, Main part of genitalia; 12, aedeagus.

end of each valve rotated until it lies flat. Also, intraspecific variation in genital components of other arctiids is often so great that variation of such features in one of six dissections, even if real, need not be surprising. No significant differences could be seen in the female genitalia (two American, one Siberian). I concluded that there is no reliable way to distinguish North American from Siberian specimens of this species, even subspecifically.

None of this information points to the origin of the type of *obliterata*. It could have come from somewhere in northwestern North America, but probably not California, where the presence of the species is not impossible but remains unrecorded. It is known from Cameron Bay, on Great Bear Lake, and Fort Smith, Northwest Territories (Canadian National Collection), and

from southern Manitoba, Saskatchewan, Alberta, Montana, and Idaho, where it has been collected at light in foothills or high plains habitats, flying 20 July–6 September. Colorado records are few, but I saw one labeled Dinosaur, Moffat Co., Colorado, Aug. 1972, S. Ellis; and I was advised of another from the Engel collection in the Carnegie Museum, Pittsburgh, Pennsylvania, labeled only “Colorado” (J. E. Rawlins in litt.). Specimens were collected on the Green River, Daggett Co., 23 Aug. 1987, 1 Sept. 1990, by R. C. Mower. Although the range of *G. obliterata* extends to the subarctic, it is not known from alpine habitats in North America. The known palearctic distribution includes the Sayan Mountains, Kentai Mountain, and other places in the general region of the Siberian-Mongolian border (type locality of *turbans*: “Tunga-



13



15



14



16

Figs. 13–16. *Grammia obliterata*, ♂ genitalia. 13, Specimen from Calgary, Alberta, USNM genitalia slide No. 57,414; 14, same, aedeagus; 15, same specimen from Irkutsk [Siberia, USSR] shown in Fig. 3, DCF slide 1,581 (British Museum); 16, same, aedeagus. All photographs by the author.

Alpen, südwestlich von Irkutsk"). This extraordinary disjunction would seem to match that of *Holarctia cervini* (Fallou) (Ferguson 1985: 208), of which, in the same way, nearctic and palearctic specimens seem indistinguishable.

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